



Dispensing and filling of chemicals: a simple way to ensure better protection and more efficient processes with closed systems

The fundamental standards for manufacturing semiconductors and solar cells are as concise as they are clear – they demand absolute protection of people and the environment against chemicals, while simultaneously protecting ultrapure chemicals from contamination. Lately of course, the requirement for highly efficient processes has been added.



The QC-System: many ideas for maximum safety

The QC-System undergoes continuous further development and improvement to meet the constantly increasing safety standards in the solar and semiconductor industry, often in direct cooperation with the customers.

It is hardly surprising that so many technical innovations are unique on the market. The objective in this is always the same: not only to obtain an ultrapure product in absolutely safe conditions, without contamination or dripping, but also to transport it quickly from A to B.

Fill heads with limit switches

Among the highlights of the QC-System with regard to safety are the fill heads with integrated limit switches, whose strengths can be applied most effectively when filling and during recirculation of hydrofluoric acid or corrosive mixtures as one, of the examples.



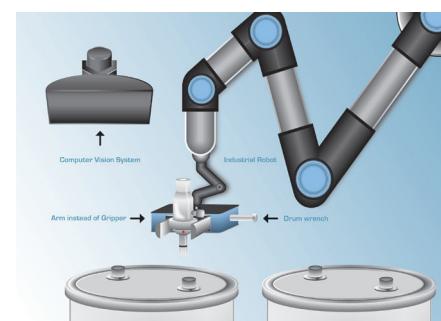
Integrated limit switches prevent the pumping process from starting if the filling head is not correctly or completely connected.



The conductive QC components are also made entirely of plastic, which means they are ideal for integration in explosion-proof distribution systems for solvents.

Suitable for use with robots

Handling of chemicals will also be part of fully automated processes in the semiconductor production of the future.



Fully automated connection of the dispense/fill-heads by robots.

The QC-System is already designed for use with robots, the product details and materials are adapted for modern automation processes. Together with newly developed RFID solutions, the entire chemical and container management operation is raised to a totally new level.

No more overfilling

The overfilling protection facility of the QC-System prevents unintentional and hazardous overfilling of containers. A specially developed sensor in the filling head reliably sends a signal to the pump control and stops the filling process. If required, a simple nitrogen blanketing system may also be provided through a second channel in the head – filling in the closed system without escaping nitrogen gases is also efficiently assured.

Practice-oriented details for more efficiency

With more than 30 years of experience in the semiconductor and solar panel production processes, AS designs its QC-Systems to reflect practical realities; the processes can constantly be improved and made more efficient.

It is surprising that still little is known about how this can be achieved simply and economically by using modern dispensing systems. And in addition, there is potential for substantial savings during the various process steps.

Dispensing chemicals more quickly, more safely and more efficiently

There are very good reasons why the QC-System, produced by AS, has emerged over decades as one of the leading dispensing systems worldwide for ultrapure and aggressive chemicals. Customers including prestigious chemical manufacturers and end customers in various industrial sectors benefit from a highly flexible precision tool in more than 100,000 variants for almost any imaginable operational purpose.

It is completely free of metals and made from 100% ultrapure, high-performance plastics, including a patented coding system that prevents product mix-ups. It includes a Quick-Connect System, every last detail of which is designed to maximize safety and purity during production.

Regardless of whether the process involves dispensing acid or returning it after use, the limit switch in the head or in the shut-off valve reliably prevents the pumping process from being started until the filling head has been correctly connected to the container.

A signal transmitter also provides an optical display indicating whether a secure connection exists. Only the QC-System offers this in this form.

Safe even in explosive areas

The QC-System is also available in a completely electrically conductive variant, and gases are also reliably prevented from escaping, so it can be used without difficulty in areas where there is a risk of explosion. This also makes handling solvents such as isopropyl alcohol simpler and safer.

The expertise of the AS engineers is guaranteed for all their products no matter how unique the variant - engineering made in Germany.

Quicker still with the high flow version



The G-Series empties a 1000 liter IBC container in 10 minutes.

The G-Series, which was originally developed for the solar industry, permits highly efficient dispensing and filling with flow rates of up to 150 L/min. This means that a 1000 liter IBC container is emptied in just 10 minutes. The G-Series is now in use in many sectors of industry.

Automatic empty status reports

The QC dispense heads with their integrated bubble sensor enable automated operation, such as actuation of the pump, control of signal lights or signal horns, or

automatic switching between two containers. This enables downtimes to be reduced practically to zero.

Moreover, there is no need for the presence of a technician when dispensing in a closed circuit, such as the QC-System, with remote and alert systems as an option. All of this increases productivity, while also ensuring quicker processes and better efficiency.



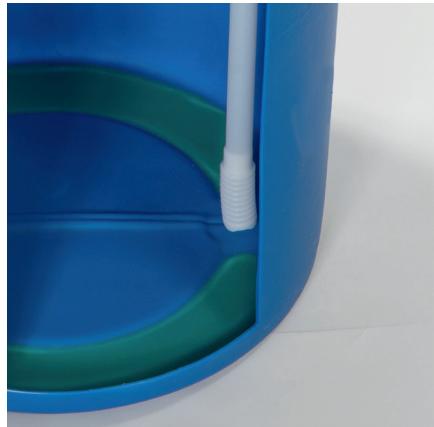
Integrated sensors in the dispense heads make automatic shut-down or switching between containers possible, thereby maximizing efficiency.
Picture: atp GmbH

Best possible residual drainage

Custom-made QC dip tubes fitted with bellows are adapted to different lengths and threads, ensuring almost complete drainage, even from large containers. With a Schütz-IBC type, for instance, residual quantities of less than 2 liters are possible. This is not only highly efficient, it also makes the return transport and disposal of the containers much easier, less hazardous and less expensive.

This is why the suppliers of chemicals like to pre-install QC dip tubes in advance, which makes handling and logistics even easier and more convenient for users.

With QC dip tubes, even without bellows, a substantially smaller residual quantity is left in containers than with previous systems.



QC dip tubes with bellows permit almost complete drainage – as well as less hazardous, less expensive transport.

Wide range of variants ensures highest flexibility

Customers can already choose from more than 100 dispense head variants and more than 1000 dip tubes, many of which were developed by AS according to customer specifications. And if a special solution is not immediately available, the technicians in the development center in Germany will keep working until it fits.



From a 5 liter canister all the way to an IBC – QC fits.



'AS provides more than 4500 customers worldwide from the semiconductor, solar, pharmaceutical, chemical and electroplating industry with the patented QC-System worldwide'



More than 100,000 possibilities: Combinations of 100 dispense heads and more than 1000 dip tubes possible.

For individual combinations

The QC-System is designed as a modular construction kit, with which different series (QC-2, QC-3 and the G-Series) can be combined in a highly flexible manner and fitting for all kinds of uses: different materials, ventilation systems, connectors (horizontal and vertical), valves and O-rings provide complete flexibility. Additional options, such as the mentioned limit switches, special mixing nozzles and pumps, make customized solutions possible.

Fits all containers from 5 to 1000 liters

Whether for IBCs, drums or canisters, and for any type of connection thread, for dome covers or IBC top covers – the QC-System fits all container and packaging systems ranging from 5 to 1000 liters.

Designed for fastest delivery

Anyone who has waited for weeks for their new dispensing system or replacement parts can fully appreciate fast delivery times. Therefore AS has always attached

great importance to quick handling and logistics. This is surely one of the reasons why the complete QC-System is now used in an enormously diverse range of industrial sectors all over the world. The combination of quality and speed has always paid off.

The American users of chemicals in the semiconductor and solar industries can therefore look forward to this special 'quick & clean' system, which will ensure better protection and lead to quicker processing.

□ www.as-plastech.com

The QC-System at a glance

A complete system made of ultrapure, high-performance plastics, proven over decades, is now available in over 100,000 product variants: more than 100 dispense head versions, more than 1000 dip tubes and a comprehensive range of additional options. 100% adaptable to customer specifications. Extremely short delivery times.

A.S. Plastics Technology

A.S. Plastics Technology, Inc., with its headquarters in Texas, is responsible for distribution of AS products as well as for customer service on the US market.

As one of the leading manufacturers of chemical dispense systems, AS provides more than 4500 customers worldwide from the semiconductor, solar, pharmaceutical, chemical and electroplating industry with the patented QC-System (Quick Connect), worldwide.

Furthermore, AS develops and produces complete ready-to-connect systems, serial parts, customized products and complex devices from high performance plastics. Intelligent solutions made in Germany – developed in the USA.